WHAT IS CLAIMED IS:

1. An isolated nucleic acid molecule comprising a polynucleotide having a nucleotide sequence selected from the group consisting of:

(a) a polynucleotide fragment of SEQ ID NO:1 or a polynucleotide fragment of the cDNA sequence included in at least one of ATCC Deposit No: PTA-4454 or PTA-4803, which is hybridizable to SEQ ID NO:1;

(b) a polynucleotide encoding a polypeptide fragment of SEQ ID NO:2 or a polypeptide fragment encoded by the cDNA sequence included in at least one of ATCC Deposit No: PTA-4454 or PTA-4803, which is hybridizable to SEQ ID NO:1;

(c) a polynucleotide encoding a polypeptide domain of SEQ ID NO:2 or a polypeptide domain encoded by the cDNA sequence included in at least one of ATCC Deposit No: PTA-4454 or PTA-4803, which is hybridizable to SEQ ID NO:1;

(d) a polynucleotide encoding a polypeptide epitope of SEQ ID NO:2 or a polypeptide epitope encoded by the cDNA sequence included in at least one of ATCC Deposit No: PTA-4454 or PTA-4803, which is hybridizable to SEQ ID NO:1;

(e) a polynucleotide encoding a polypeptide of SEQ ID NO:2 or the cDNA sequence included in at least one of ATCC Deposit No: PTA-4454 or PTA-4803, which is hybridizable to SEQ ID NO:1, having MGAT activity;

(f) a polynucleotide which is a variant of SEQ ID NO:1;

(g) a polynucleotide which is an allelic variant of SEQ ID NO:1;

(h) an isolated polynucleotide comprising nucleotides 171 to 1190 of SEQ ID NO:1, wherein said nucleotides encode a polypeptide corresponding to amino acids 2 to 341 of SEQ ID NO:2 minus the start methionine;

(i) an isolated polynucleotide comprising nucleotides 168 to 1190 of SEQ ID NO:1, wherein said nucleotides encode a polypeptide corresponding to amino acids 1 to 341 of SEQ ID NO:2 including the start codon;

(j) a polynucleotide which represents the complimentary sequence (antisense) of SEQ ID NO:1; and

(k) a polynucleotide capable of hybridizing under stringent conditions to any one of the polynucleotides specified in (a)-(j), wherein said polynucleotide does not

hybridize under stringent conditions to a nucleic acid molecule having a nucleotide sequence of only A residues or of only T residues.

2. A recombinant vector comprising said isolated nucleic acid molecule of claim 1.

3. A recombinant host cell comprising said recombinant vector of claim 2.

4. An isolated polypeptide comprising an amino acid sequence selected from the group consisting of:

(a) a polypeptide fragment of SEQ ID NO:2 or the encoded sequence included in at least one of ATCC Deposit No: PTA-4454 or PTA-4803;

(b) a polypeptide fragment of SEQ ID NO:2 or the encoded sequence included in at least one of ATCC Deposit No: PTA-4454 or PTA-4803, having MGAT activity;

(c) a polypeptide domain of SEQ ID NO:2 or the encoded sequence included in at least one of ATCC Deposit No: PTA-4454 or PTA-4803;

(d) a polypeptide epitope of SEQ ID NO:2 or the encoded sequence included in at least one of ATCC Deposit No: PTA-4454 or PTA-4803;

(e) a full length protein of SEQ ID NO:2 or the encoded sequence included in at least one of ATCC Deposit No: PTA-4454 or PTA-4803;

(f) a polypeptide comprising amino acids 2 to 341 of SEQ ID NO:2, wherein said amino acids 2 to 341 comprising a polypeptide of SEQ ID NO:2 minus the start methionine; and

(g) a polypeptide comprising amino acids 1 to 341 of SEQ ID NO:2.

5. The isolated polypeptide of claim 4, wherein the full length protein comprises sequential amino acid deletions from either the C-terminus or the N-terminus.

6. An isolated antibody that binds specifically to said isolated polypeptide of claim 4.

7. A recombinant host cell that expresses said isolated polypeptide of claim 4.

8. A method of making an isolated polypeptide comprising:

(a) culturing said recombinant host cell of claim 7 under conditions such that said polypeptide is expressed; and

(b) recovering said polypeptide.

9. The polypeptide produced by claim 8.

10. A method for preventing, treating, or ameliorating a medical condition, comprising the step of administering to a mammalian subject a therapeutically effective amount of said polypeptide of claim 4, or a modulator thereof.

11. A method of Claim 10, wherein said medical condition is related to aberrant MGAT3 activity.

12. A method of Claim 10, wherein said medical condition is selected from the group consisting of obesity and a gastrointestinal disorder.

13. A method of Claim 12, wherein said gastrointestinal disorder is Crohn's disease.

14. A method of diagnosing a pathological condition or a susceptibility to a pathological condition in a subject comprising:

(a) determining the presence or absence of a mutation in said polynucleotide of claim 1; and

(b) diagnosing a pathological condition or a susceptibility to a pathological condition based on the presence or absence of said mutation.

15. A method of diagnosing a pathological condition or a susceptibility to a pathological condition in a subject comprising:

(a) determining the presence or amount of expression of said polypeptide of claim 4 in a gastrointestinal tissue sample; and

(b) diagnosing a pathological condition or a susceptibility to a pathological condition based on the presence or amount of expression of said polypeptide.

16. A method of treating Crohn's disease comprising administering to a patient in need thereof an MGAT3 polypeptide or a modulator thereof.